MALCOLM PIRNIE

Site Characterization Study of the Meeker Wind Resource Area

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APPENDIX

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

EXECUTIVE SUMMARY

The proposed Meeker Wind Resource Area (MWRA) project is located in Meeker and Kandiyohi Counties, Minnesota. The purpose of this report is to characterize biological and cultural resources in the proposed project area, identify the timing of recommended future studies, and identify zoning issues that may affect turbine siting. The project area was examined from public roads on April 9, 2008. During the site visit, biological features and potential wildlife habitat including plant communities, topography features, and potential raptor nesting habitat and prey populations were identified.

The MWRA, currently about 49,950 acres, has many farmsteads, several small towns, numerous trees and woodlots. The project area falls within the Minnesota River Prairie subsection of the Prairie Parkland Province ecological region. Topography in this subsection is generally level to gently rolling hills. This area has largely been converted from tallgrass prairie and wet prairie to cropland; row crop agriculture is the dominant land use. Ownership is 98.5% private, 1% US Fish and Wildlife Service, and 0.5% state-owned within the MWRA.

Most (86%) of the project area is cropland. Based on crop residue observed during the site visit, soybeans and corn were common crops in 2007. The next most common habitat is grassland which comprises about 6% of the project area. Grasslands were observed to be mainly pasture and planted grasses.

There are no federally protected plant species listed for the state that occur in the MWRA. Western EcoSystems Technology, Inc has not received a reply from federal agencies regarding a project review; it is possible that other issues regarding sensitive plant species and habitats may arise. Minnesota has an extensive list of endangered, threatened, and special concern plants that is beyond the scope of this report to address; the review from the Natural Heritage Program, when received, will help with this task.

One of the greatest concerns with displacement impacts in this region are for wind-energy facilities that are placed in native grasslands and other native habitats. The land classification that WEST obtained from MN GAP Analysis grouped native grass, pasture, planted cover, and hayland into one category called “grassland”. Therefore, we have only general information about the amount of native grasslands in the project area. During the site visit, no areas of native prairie were observed; very little planted grass was found.

Based on National Wetland Inventory polygon data, there are relatively few wetlands within the project area. There are about 4,472 acres of wetlands, not including streams and rivers, found in the 49,950 acre MWRA; about 9% of the total MWRA is wetlands. Most of the wetland acreage is seasonally flooded (55%). There are several large lakes surrounding the MWRA which are likely to attract waterbirds; these birds will no doubt move between the lakes, taking them through the MWRA.

There were no wildlife species listed as endangered, threatened, or candidate by the USFWS under the Endangered Species Act known to occur in Kandiyohi and Meeker counties. WEST

conducted a preliminary review of the birds from the State list and found 6 species with the potential to occur in or near the project area.

The following raptor species could occur in or near the project area: bald eagle, golden eagle, northern harrier, Cooper's hawk, broad-winged hawk, red-tailed hawk, rough-legged hawk, and American kestrel. Other species often grouped with raptors that could be found in the project area include the barred owl, eastern screech owl, great-horned owl, long-eared owl, short-eared owl, and turkey vulture. Seven of these species are confirmed or suspected breeders in the project area: northern harrier, Cooper's hawk, red-tailed hawk, American kestrel, eastern screech owl, great-horned owl, and long-eared owl. During the site visit, a red-tailed hawk, American kestrel, and northern harrier were observed. One potential buteo (probably red-tailed hawk) was observed during the site visit near the community of Kandiyohi. Other potential nest structures for above ground nesting species were present in the form of living and dead trees. The grasslands could provide nesting opportunities for the ground-nesting birds such as the northern harriers.

No signs of colonial rodents (*e.g.* prairie dogs) were observed during the site visit; however, it is possible that small mammal colonies are present within the project area but were not visible from public roads. Plains pocket gopher mounds were observed during the site visit suggesting the presence of a potential prey item. Overall prey densities are not expected to be significantly different than areas outside of the proposed project area. It is likely that raptors will use the area but not to a greater degree than the surrounding areas with similar habitat. Raptor use is not expected to be influenced by the topography in the project area due to the lack of consistent ridge lines or other steep features.

Although many species of songbirds migrate at night and may collide with tall man-made structures, no large mortality events on the same scale as those seen at communication towers have been documented at wind-energy facilities in North America. Migrating songbirds are likely most at risk of turbine collision when ascending and descending. The Minnesota River Prairie is an important migratory pathway for birds. It is likely that birds migrate through the proposed project area, including songbirds, raptors, and waterfowl.

The nearest U.S. Geological Survey breeding bird survey routes are Knapp and New London. In 2007, 52 species (682 individuals) were observed on the Knapp route. The most abundant breeding birds observed were the common grackle, red-winged blackbird, common yellowthroat, ring-necked pheasant, and American robin. On the New London route in 2007, 77 species (1,000 individuals) were observed. The most abundant birds were the common grackle, red-winged blackbird, common yellowthroat, barn swallow, and European starling. Besides these species, the overall Minnesota River Prairie region is an important nesting region for waterfowl.

There are several species of bats that could be found in Kandiyohi and Meeker Counties, Minnesota, including the big brown bat, hoary bat, eastern red bat, little brown myotis, northern myotis, eastern pipistrelle, and the silver-haired bat. The northern myotis and eastern pipistrelle are both on the State's list as a species of special concern. Potential roosting habitat within the project area is found in the form of forests, treerows, and buildings. Bats may forage over the entire MWRA, although the extent of use is not known. Construction of the proposed project

will likely result in the mortality of some bats. The magnitude of these fatalities and the degree to which bat species will be affected is difficult to determine.

Beaver Creek Archaeology, Inc. conducted a Level I Cultural Resource Inventory and Review for the MWRA. The search revealed that 1 archaeological site and 39 historic/architectural sites have been documented in the project area. However, the proposed project area is located in a region that has a high potential for archaeological sites given the lakes and natural resources. BCA recommends that a Level III Cultural Resource Inventory be performed within the proposed project area.

A summary of project considerations may be found in Table E-1.

Table E-1. Site Characterization Summary.

Resource	Project Considerations	Proposed Future Studies	Timing of Potential Studies
Vegetation			
Wetlands and Waters of the U.S.	Wetlands and Waters of the U.S. occupy a portion of the project area. Site away from higher wetland concentration areas to minimize wildlife impacts	Conduct a wetland delineation once the facility design has been determined but prior to finalizing the layout. Micro-site facilities when possible to avoid or minimize impacts to wetlands/waters	Spring or Summer
Native Grasslands	Minimal native grasslands may be in the project area. Site away from native grassland areas to minimize impacts.	Update vegetation map of selected region to help micro-site facility to minimize impacts to native grasslands.	Spring or Summer
Wildlife			
Threatened and Endangered Species	Several state species of interest may occur in the project area.	Habitat mapping of any selected site would be required before further surveys, if any, would be completed.	Spring and summer
Nesting Raptors	Tree rows and grasslands in the area provide nesting habitat for raptors.	Survey suitable habitat for nests.	Spring
Migratory Birds	Migrating birds pass over the project area and could stop at the cropland, wetlands, and grasslands.	Avian point count surveys	Spring, Summer, and Fall
Breeding Birds	The grasslands, trees, and wetlands in the project provide potential nesting habitat for many species.	Breeding bird transects	Summer
Bats	Habitats suitable for bat roosting and foraging occur in the project area.	Acoustic bat surveys.	Summer and Fall
Cultural Resources			
Archaeological Resources	1 archaeological site and 39 historic/architectural sites have been documented in the project area	Field survey (Class III) likely needed due to the project location.	Snow free period.

INTRODUCTION

When exploring prospective wind-energy facility sites, knowledge of biological and cultural resource issues helps the wind industry identify and avoid potential problems early in the development process. This report describes biological and cultural resources present within a large potential wind resource area and evaluates these general characteristics as related to potential or known impacts on the resources from wind-energy facilities. This report also provides information on state permitting issues relevant to the project.

The proposed Meeker Wind Resource Area (MWRA) project (Figure 1) is located in Kandiyohi and Meeker Counties, Minnesota, near the towns of Kandiyohi, Atwater, and Grove City. The purpose of this report is to 1) characterize biological and cultural resources in the proposed project area and determine if additional biological and/or cultural resource surveys are warranted, 2) identify the timing of recommended future studies, and 3) identify zoning/permitting issues that may affect turbine siting.

STUDY AREA

The MWRA, currently about 49,950 acres, is located in central Minnesota; most of the project area is in east central Kandiyohi County with the remainder located in west central Meeker County. The project area has many farmsteads, several small towns, numerous trees, and woodlots (Figure 2).

The project area falls within the Minnesota River Prairie subsection of the Prairie Parkland Province ecological region (http://www.dnr.state.mn.us/ecs/index.html). The Minnesota River cuts through this subsection, creating a valley between large till plains. Topography in this subsection is generally level to gently rolling hills. This area has largely been converted from tallgrass prairie and wet prairie to cropland; row crop agriculture is the dominant land use. Well drained loamy soils are dominant (DNR 2006). Most of the subsection is Udolls and Aquolls soils. Ownership is 98.5% private, 1% US Fish and Wildlife Service, and 0.5% state-owned within the MWRA portion of the subsection (Figure 3). The USFWS lands are Waterfowl Production Areas and the state-owned lands are Reinvest in Minnesota and Wildlife Management Areas (MN GAP Analysis).

Elevation in the MWRA ranges from 344 m to 390 m (Figure 4; 1,129-1,280 ft). Higher elevations are generally found in the southwest portion of the MWRA, in Kandiyohi County.

METHODS

Biological resources within the project area were evaluated through a search of existing data and a site visit. The project area was examined from public roads on April 9, 2008. During the site visit, biological features and potential wildlife habitat including plant communities, topography features, and potential raptor nesting habitat and prey populations were identified. All wildlife

species observed during the site visit were recorded and photographs were taken of the project area (Appendix A).

Several sources of available data were used to identify biological resources within the project area including published literature, field guides, and public data sets. Information about sensitive species presence and locations was requested from the Minnesota Natural Heritage Program (MNHP) and U.S. Fish & Wildlife Service (USFWS); at this time, no official correspondence has been received from the MNHP or the USFWS regarding the project (Appendix B when available).

Cultural resources within the study area are being evaluated through a Class I Cultural Resource Inventory (literature review/file search). Permitting and zoning issues were analyzed by reviewing the Minnesota Public Utility Commission's website for wind energy facilities (http://energyfacilities.puc.state.mn.us/wind.html).

LAND COVER

Most (86%) of the project area is cropland (Table 1; Figure 5; MN GAP Analysis). In general, the northern portion of the MWRA has a higher proportion of cropland than the southern portion. Based on crop residue observed during the site visit, soybeans and corn were common crops in 2007. The next most common habitat is grassland which comprises about 6% of the project area. Grasslands, which were observed to be mainly pasture and planted grasses (e.g., CRP) during the site visit, were more common in the southern portion of the project area. All other land cover types taken individually make up less than 3% of the project area.

Table 1. Land use types present within the project area (MN GAP Analysis).

Land use	Acres	% Composition
Cropland	43167.91	86.4
Grassland	2837.74	5.7
Sedge/Cattail	1302.64	2.6
Water	762.95	1.5
Forest/Trees	677.93	1.4
Urban	617.93	1.2
Upland Shrub	582.63	1.2

Sensitive and Special Status Plant Species

There are no federally protected plant species listed for the state that occur in the MWRA (http://ecos.fws.gov/tess_ public/StateNonOccurrence.do?state=MN). Western EcoSystems Technology, Inc (WEST) has not received a reply from federal agencies regarding a project review; it is possible that other issues regarding sensitive plant species and habitats may arise. Minnesota has an extensive list of endangered, threatened, and special concern plants that is beyond the scope of this report to address (http://www.dnr.state.mn.us/ets/index.html). It will be

possible to better address the state's list upon receipt of the review from the Natural Heritage Program.

Sensitive Habitats

The presence of wind turbines may alter the landscape so that wildlife habitat use patterns are altered, possibly displacing wildlife from the project facilities. One of the greatest concerns with displacement impacts in this region are for wind-energy facilities that are placed in native grasslands and other native habitats. The land classification that WEST obtained from MN GAP Analysis grouped native grass, pasture, planted cover, and hayland into one category called "grassland" and the site visit was not a formal habitat mapping attempt. Therefore, we have only general information about the amount of native grasslands in the project area. During the site visit, no areas of native prairie were observed; very little planted grass was found. Most areas that would fit into the MN GAP definition of "grassland" were found to be planted hay such as alfalfa. Only limited areas of Conservation Reserve Program (CRP) type lands or other natural areas were documented around some of the wetlands.

Wetlands and Riparian Areas

Formal wetland delineations for the project have not been completed. Based on National Wetland Inventory (NWI) polygon data, there are relatively few wetlands within the project area (Table 2). There are about 4,472 acres of wetlands, not including streams and rivers, found in the 49,950 acre MWRA; about 9% of the total MWRA is wetlands. Most of the wetland acreage is seasonally flooded (55%). There are several large lakes surrounding the MWRA which are likely to attract waterbirds; these birds will no doubt move between the lakes, taking them through the MWRA (Figure 6).

Table 2. Wetland types present within the project area (NWI wetland polygons).

Wetland type/modifier	Acres	% Composition
lake	439.80	9.84
permanently flooded	16.76	0.37
semi-permanently flooded	785.87	17.58
seasonally flooded	2462.13	55.06
temporarily flooded	766.95	17.15

WILDLIFE

Wildlife species associated with tilled agricultural landscapes, prairies, and deciduous forests are expected to be most common in the project area. A list of species observed during the site visit is provided in Table 3.

Table 3. Wildlife species observed in the MWRA during the April 9, 2008 site visit.

Common Name	Scientific Name
American crow	*Corvus brachyrhynchos*
American kestrel	*Falco sparverius*
American robin	*Turdus migratorius*
blue jay	*Cyanocitta cristata*
Canada goose	*Branta canadensis*
common grackle	*Quiscalus quiscula*
dark-eyed junco	*Junco hyemalis*
European starling	*Sturnus vulgaris*
great blue heron	*Ardea herodias*
great egret	*Ardea alba*
hooded merganser	*Lophodytes cucullatus*
horned lark	*Eremophila alpestris*
killdeer	*Charadrius vociferus*
loggerhead shrike	*Lanius ludovicianus*
mallard	*Anas platyrhynchos*
mourning dove	*Zenaida macroura*
northern flicker	*Colaptes auratus*
northern harrier	*Circus cyaneus*
northern pintail	*Anas acuta*
pied-billed grebe	*Podilymbus podiceps*
red-tailed hawk	*Buteo jamaicensis*
red-winged blackbird	*Agelaius phoeniceus*
ring-necked pheasant	*Phasianus colchicus*
rock pigeon	*Columba livia*
vesper sparrow	*Pooecetes gramineus*
Eastern fox squirrel	*Sciurus niger*
Eastern gray squirrel	*Sciurus carolinensis*
striped skunk	*Mephitis mephitis*
thirteen-lined ground squirrel	*Spermophilus tridecemlineatus*
white-tailed deer	*Odocoileus virginianus*

Federal Listed Species

There were no wildlife species listed as endangered, threatened, or candidate by the USFWS under the Endangered Species Act (ESA) known to occur in Kandiyohi and Meeker counties (http://ecos.fws.gov/tess_public/StartTESS.do). WEST has not received replies from federal agencies regarding a project review; it is possible that other issues regarding sensitive species and habitats may arise.

Minnesota State Listed Species

Minnesota has an extensive list of state endangered, threatened, and special concern animals that is beyond the scope of this report to address (http://www.dnr.state.mn.us/ets/index.html). WEST

conducted a preliminary review of the birds from the State list and found 6 species with the potential to occur in or near the project area (Table 4).

Table 4. Species listed as endangered, threatened, or of special concern by the state of Minnesota with potential to occur in or near Kandiyohi or Meeker Counties, Minnesota.

Species	State Status	Habitat	Likelihood of Occurrence in Project Area
king rail	E	freshwater and brackish marshes with plant cover	not likely, preferred habitat not observed during site visit
loggerhead shrike	T	open grassland, ag lands, interspersed with trees and shrubs	Observed during site visit.
trumpeter swan	T	ponds, marshes, lakes, rivers	possible
Franklin's gull	SC	marshes and lakes	possible
Forster's tern	SC	Marshes with open water, lakes	possible
bald eagle	SC	forested areas, near large bodies of water, major rivers	probable migrant

* E = Endangered, T = Threatened, SC = Special Concern

Raptors

Species Likely To Occur In the Area
The following raptor species could occur in or near the project area: bald eagle (*Haliaeetus leucocephalus*), golden eagle (*Aquila chrysaetos*), northern harrier, Cooper's hawk (*Accipiter cooperii*), broad-winged hawk (*Buteo playpterus*), red-tailed hawk, rough-legged hawk (*Buteo lagopus*), and American kestrel.

Other species often grouped with raptors that could be found in the project area include the barred owl (*Strix varia*), eastern screech owl (*Megascops asio*), great-horned owl (*Bubo virginianus*), long-eared owl (*Asio otus*), short-eared owl (*Asio flammeus*), and turkey vulture (*Cathartes aura*). During the site visit, a red-tailed hawk, American kestrel, and northern harrier were observed in the project area (Table 3).

Seven of these species are confirmed or suspected breeders in the project area: northern harrier, Cooper's hawk, red-tailed hawk, American kestrel, eastern screech owl, great-horned owl, and long-eared owl.

Potential Raptor Nesting Habitat
One potential buteo (red-tailed hawk likely) was observed during the site visit near the community of Kandiyohi. Other potential nest structures for above ground nesting species were present in the form of living and dead trees. Farmsteads, lakes, and wetlands observed during the site visit usually had trees rows or woodlots associated with them. The grasslands, which were mostly planted and hayed alfalfa and limited CRP lands, could provide nesting opportunities for the ground-nesting birds such as the northern harriers.

Potential for prey densities
No signs of colonial rodents (*e.g.* prairie dogs [*Cynomys* spp.]) were observed during the site visit; these types of areas are known to attract feeding raptors. However, it is possible that small mammal colonies are present within the project area but were not visible from public roads. Plains pocket gopher (*Geomys bursarius*) mounds were observed during the site visit suggesting the presence of a potential prey item. Other potential raptor prey sources include rodents, rabbits, and waterfowl.

Overall, it is very difficult to assess potential prey densities during a single site visit and prey densities can fluctuate rapidly based on habitat and climatic factors. However, overall prey densities are not expected to be significantly different than areas outside of the proposed project area. With roost sites and food available, it is likely that raptors will use the area but not to a greater degree than the surrounding areas with similar habitat.

Does the topography of the site increase the potential for raptor use?

Overall, the MWRA is comprised of flat to gently rolling terrain. At other wind-energy facilities located on prominent ridges with defined edges, raptors fly along the rim edges, using wind updrafts to maintain altitude while hunting, migrating or soaring. Turbines are often placed on prominent ridges, in order to use higher wind speeds and updrafts that raptors also use. In Wyoming, raptors most often used areas within 50 m of the rim edge (Johnson et al. 2000). Raptor use is not expected to be influenced by the topography in the project area due to the lack of consistent ridge lines or other steep features (Figure 7).

Avian Migration

Most species of birds are protected by the Migratory Bird Treaty Act. Although many species of songbirds migrate at night and may collide with tall man-made structures, no large mortality events on the same scale as those seen at communication towers have been documented at wind-energy facilities in North America (NWCC 2004). Large numbers of songbirds have collided with lighted communication towers and buildings when foggy conditions occur during spring or fall migration. Birds appear to become confused by the lights during foggy or low cloud ceiling conditions, flying circles around lighted structures until they become exhausted or collide with the structure (Erickson et al. 2001). Most collisions at communication towers are attributed to the guy wires on these structures, which wind turbines do not have. Additionally, the large mortality events observed at communication towers have occurred at structures greater than 152 m (500 ft) in height (Erickson et al. 2001), likely because most small birds migrate at elevations of 152 m (500 ft) to 305 m (1000 ft) (USFWS 1998), which is higher than most of the modern turbines. Migrating songbirds are likely more at risk of turbine collision when ascending and descending from stopover habitats.

The Minnesota River Prairie is an important migratory pathway for birds (DNR 2006). It is likely that birds migrate through the proposed project area, including songbirds, raptors, and waterfowl. Harvested grain crops could serve as a feeding area that could attract migrating birds.

Breeding Birds

The nearest U.S. Geological Survey breeding bird survey (BBS) routes are Knapp and New London. The New London route is north of the MWRA and the Kanpp route is to the east (Figure 8). Each BBS route is 24.5 miles long, and all birds seen or heard are tallied for a 3-minute period every half mile along the route. In 2007, 52 species (682 individuals) were observed on the Knapp route (Sauer et al. 2007). The most abundant breeding birds observed were the common grackle, red-winged blackbird, common yellowthroat (*Geothlypis trichas*), ring-necked pheasant, and American robin. On the New London route in 2007, 77 species (1,000 individuals) were observed (Sauer et al. 2007). The most abundant birds were the common grackle, red-winged blackbird, common yellowthroat, barn swallow (*Hirundo rustica*), and European starling. Besides these species, the overall Minnesota River Prairie region is an important nesting region for waterfowl.

Recent research has started to focus on the potential displacement of grassland songbirds at wind-energy facilities. Some uncertainty currently exists over the effects of wind-energy facilities on breeding grassland songbirds. In Minnesota, researchers have found that breeding songbird density on CRP grasslands was reduced in the immediate vicinity of turbines (Leddy et al. 1999), but changes in density at broader scales was not detectable (Johnson et al. 2000). Erickson et al. (2004) documented a decrease in density of some native grassland songbirds such as grasshopper sparrows near turbines in Washington; however, they could not determine if a decrease in post-construction density was the result of behavioral disturbance or a loss of habitat. Piorkowski (2006) conducted a displacement study at a wind-energy project in Oklahoma where, of the grassland species present on the site, only the western meadowlark showed significantly lower densities near turbines. Piorkowski (2006) suggested that habitat characteristics were more important to determining songbird breeding densities than the presence of wind turbines. The proposed project contains minimal grasslands, and few if any native grasslands, which will limit overall potential impacts; however, some species of sensitive grassland songbirds may still be present in the project area near CRP lands and the areas around lakes or wetlands. Shaffer and Johnson (2007) documented avoidance by grasshopper sparrows out to 150 m at a wind-energy facility in northern South Dakota. As more research is published, the potential impacts of wind turbines on breeding songbirds can be better defined.

Bats

There are several species of bats that could be found in Kandiyohi and Meeker Counties, Minnesota, including the big brown bat (*Eptesicus fuscus*), hoary bat (*Lasiurus cinereus*), eastern red bat (*Lasiurus borealis*), little brown myotis (*Myotis lucifugus*), northern myotis (*Myotis septentrionalis*), eastern pipistrelle (*Perimyotis subflavus*), and the silver-haired bat (*Lasionycteris noctivagans*; http://www.batcon.org/SPprofiles). The northern myotis and eastern pipistrelle are both on the State's list as a species of special concern. The northern myotis is found in caves, mines, buildings and trees, often in groups of bats. The eastern pipistrelle, uncommon and solitary, can be found in the same types of habitats (http://www.dnr.state.mn.us/mammals/bats/index.html). The USFWS had formerly listed the long-eared bat (*Myotis evotis*), big-eared bat, long-legged bat (*Myotis volans*), and small-footed

myotis (*Myotis leibii*) as candidate species. Based on information from Bat Conservation International, none of the former candidate species occur in the project area.

Potential roosting habitat within the project area is found in the form of forests, treerows, and buildings. Bats generally forage over water and open spaces such as agricultural fields, grasslands, streams, and wetlands/ponds. Bats may forage over the entire MWRA, although the extent of use is not known. Bats may prey on insects that are likely to concentrate over water in wetlands and streams. These types of areas, found in the project area, are most likely to attract foraging bats.

Bat casualties have been reported from most wind-energy faculties where post-construction fatality data are publicly available. Reported estimates of bat mortality at wind-energy facilities have ranged from 0.01 – 47.5 per turbine per year (0.9 – 43.2 bats / MW / Year) in the U.S. with an average of 3.4 per turbine or 4.6 per MW (NWCC 2004). Most of the bat casualties at wind-energy facilities to date are migratory species which conduct long migrations between summer roosts and winter areas. The species most commonly found as fatalities at wind-energy facilities include hoary bats, silver-haired bats and eastern red bats (Johnson 2005). The highest numbers of bat fatalities found at wind-energy projects to date have occurred in eastern North America on ridge tops dominated by deciduous forest (NWCC 2004). However, Barclay et al. (2007) recently reported relatively high fatality rates from a project in Canada located in grassland and agricultural habitats. Unlike the eastern U.S. wind-energy facilities with high bat mortality, the Alberta facility is in open grasslands and crop fields, although it is adjacent to foothills along the Rocky Mountains and may be in a bat migration corridor.

Construction of the proposed project will likely result in the mortality of some bats. The magnitude of these fatalities and the degree to which bat species will be affected is difficult to determine.

CULTURAL RESOURCES

Beaver Creek Archaeology, Inc. (BCA) was contracted to conduct a Level I Cultural Resource Inventory and Review for the MWRA (Appendix C). The review was conducted by requesting a file search through the Minnesota State Historical Society. The search revealed that 1 archaeological site and 39 historic/architectural sites have been documented in the project area. Most of the documented sites are within the city limits of the various towns in the project area. However, the proposed project area is located in a region that has a high potential for archaeological sites given the lakes and natural resources. BCA recommends that a Level III Cultural Resource Inventory be performed within the proposed project area when a footprint has been identified. Architectural and historic sites listed on the National Register of Historic Places and burial locations (mounds and cemeteries) need to be avoided.

ZONING AND PERMITTING

The Minnesota Public Utilities Commission (PUC) is the permitting body with authority to issue site permits for Large Wind Energy Conversion Systems (LWECS, systems over five megawatts). As part of the LWECS site permit application process (see Figure 9, schematic available from the Minnesota PUC web site), an environmental assessment will be required. This assessment will likely include pre-construction surveys for land, water and biological features, cultural and archeological reviews, aviation constraints, television and radio tower interference review, and public meetings. The eventual permit will include set backs related to adjoining properties, roads and trails, waterways, residences, wildlife areas, wetlands, prairies, and potentially other features. This process will take a minimum of 180 days (Figure 9). Besides these general zoning permits, additional permits may be needed similar to other large scale construction projects in these counties. These could include over-width and/or over-weight permits for roads.

CONCLUSIONS

A summary of the potential for wildlife and habitat conflicts in the proposed wind-energy facility development area is presented in Table 5.

The MWRA, currently about 49,950 acres, is located in central Minnesota in east central Kandiyohi County and west central Meeker County. Ownership is 98.5% private, 1% US Fish and Wildlife Service, and 0.5% state-owned within the MWRA. Most (86%) of the project area is cropland. In general, the northern portion of the MWRA has a higher proportion of cropland than the southern portion. The next most common habitat is grassland which comprises about 6% of the project area. There are relatively few wetlands within the project area; about 9% of the total MWRA is wetlands. Most of the wetland acreage is seasonally flooded (55%). There are several large lakes surrounding the MWRA which are likely to attract waterbirds.

Biological resources within the project and evaluation areas were evaluated through a search of existing data and a site visit. The project area was examined from public roads on April 9, 2008. Information about sensitive species presence and locations was requested from the Minnesota Natural Heritage Program and U.S. Fish & Wildlife Service; at this time, no official correspondence has been received from the MNHP or the USFWS regarding the project.

There are no federally protected plant species listed for the state that occur in the MWRA. Minnesota has an extensive list of endangered, threatened, and special concern plants; it will be possible to better address the State's list upon receipt of the review from the Natural Heritage Program. During the site visit, no areas of native prairie were observed; very little planted grass was found.

There are no wildlife species listed as endangered, threatened, or candidate by the USFWS under the ESA known to occur in the MWRA. WEST conducted a preliminary review of the birds from the State list and found 6 species with the potential to occur in or near the project area.

Many species of raptors and owls could occur in or near the project area, utilizing the area for migrating or breeding. During the site visit, a red-tailed hawk, American kestrel, and northern harrier were observed in the project area. One potential buteo nest was observed during the site visit but potential nest structures for above ground nesting species were present in the form of living and dead trees. Raptor use is generally not expected to be influenced by the topography in the project area due to the lack of consistent ridge lines or other steep features.

The Minnesota River Prairie is an important migratory pathway for birds. It is likely that birds migrate through the proposed project area, including songbirds, raptors, and waterfowl. The Minnesota River Prairie provides an important nesting area for prairie ducks.

There are several species of bats that could be found in Kandiyohi and Meeker Counties, Minnesota. The northern myotis and eastern pipistrelle are both on the State's list as a species of special concern. Research to date on the impacts of wind-energy facilities on bats has shown that species that conduct long distance migrations usually make up the vast majority of bat fatalities at wind-energy facilities. Additionally, the timing of bat fatalities at wind-energy facilities indicates that most bats are killed by turbines during the migration season. Few bat fatalities have been recorded at wind-energy facilities during spring or summer, although bat use at wind-energy facilities has been recorded during those seasons. Migrating bats appear to be at much higher risk of collision than resident bat species that may breed near wind-energy facilities. Construction of the proposed project will likely result in the mortality of some bats.

Numerous birds and bats, both as measured by species and individuals, will utilize the area. Many of these species have specific habitat requirements (e.g. wetlands) and micro-siting around these habitat types could reduce potential impact from the project.

In general, native land cover, including wetlands, in most of the project area are not unique in the region but are of concern (i.e., concern regarding loss of native prairie). As the land cover is not unique to the region, these characteristics are not likely to attract or concentrate bird or bat species compared to surrounding areas. Project developments in the areas with less forest and grasslands, such as those found more in the northern portion of the MWRA, would likely have lower indirect impacts (i.e., displacement) to wildlife, particularly grassland and forest nesting bird species.

A search of the Minnesota State Historical Society records documented 1 archaeological site and 39 historic/architectural sites in the project area. Most of the documented sites are within the city limits of the various towns in the project area. However, the proposed project area is located in a region that has a high potential for archaeological sites given the lakes and natural resources. BCA recommends that a Level III Cultural Resource Inventory be performed.

If the proposed project moves forward, further wildlife and habitat surveys may be warranted. The results from those surveys could be used to identify areas of high wildlife use and sensitive habitats, assist with turbine siting, and to compare with post-construction data collection. These surveys are likely to include:

- Jurisdictional wetlands and waters of the U.S. are present in the project area. Once the facility layout has been finalized, wetland delineations for proposed access roads and other areas of ground disturbance should be conducted.

- Update of vegetation community mapping in selected project area to assist in micro-siting away from grassland areas.

- Surveys for nesting raptors should be conducted to determine use of the project area.

- Avian use surveys should be conducted to determine to what extent the site is utilized and/or in the pathway of migrating birds. Avian point count surveys would allow a more quantitative assessment of the potential for the wind-energy facility to impact birds

- As the project contains native and/or planted grassland areas, breeding bird surveys to evaluate indirect impacts through displacement and/or habitat fragmentation should be conducted.

- There is little information on bat migration routes in the Midwest and potential impacts of wind-energy development on bats is of increasing concern. Although there is no evidence that significant numbers of bats would migrate through the project area, bat acoustic surveys could be conducted during the peak bat migration (mid-July through October; coinciding with peak bat mortality at studied wind-energy facilities).

- Species-specific surveys for federal or state species of concern likely to be impacted by the project should be made once construction plans are finalized. This would include both plant and animal surveys as appropriate.

- Post-construction bird and bat mortality monitoring to estimate fatality rates and at least one year post-construction surveys for breeding birds, bats, and avian use surveys to compare to pre-construction survey information.

Table 5. A summary of the potential for wildlife and habitat conflicts in the proposed wind-energy facility project area. VH = Very High, H = High, M = Medium, and L = Low.

Issue	VH	H	M	L	Notes
Potential for raptor nest sites		✓			Many tree rows and woodlots, some grasslands.
Raptor flight potential			✓		The general lack of stark topography over the majority of the project decreases the potential for concentrated raptor use.
Potential for migratory pathway			✓		Project area has no topography or other prominent features likely to concentrate birds during migration.
Potential for raptor prey species			✓		Suitable habitat for small mammals
Potential for protected species to occur		✓			Protected species may occur in the area.
Potential for State Issues			✓		Protection of native grasslands and wetlands, likely state species issues.
Uniqueness of habitat at wind-energy facility			✓		Overall, habitat in the project area is not unique compared to the surrounding landscape, but is of concern on a regional and national scale. Remaining parcels of native habitat should be protected
Potential for rare plants to occur				✓	Rare plants known to occur in counties.
Potential for use by bats			✓		The site has scattered trees, buildings, and wetlands.

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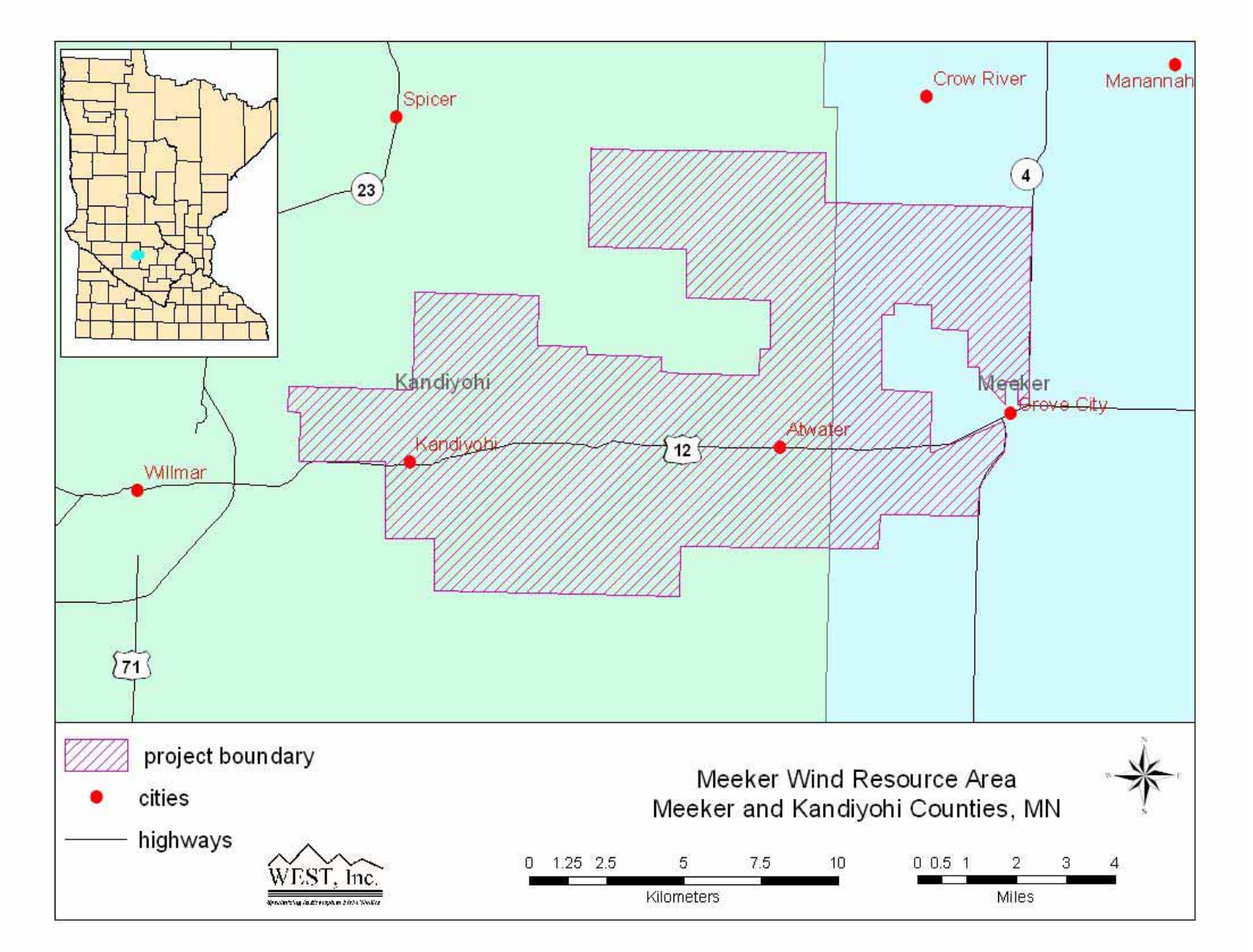


Figure 1. Meeker Wind Resource Area location map.

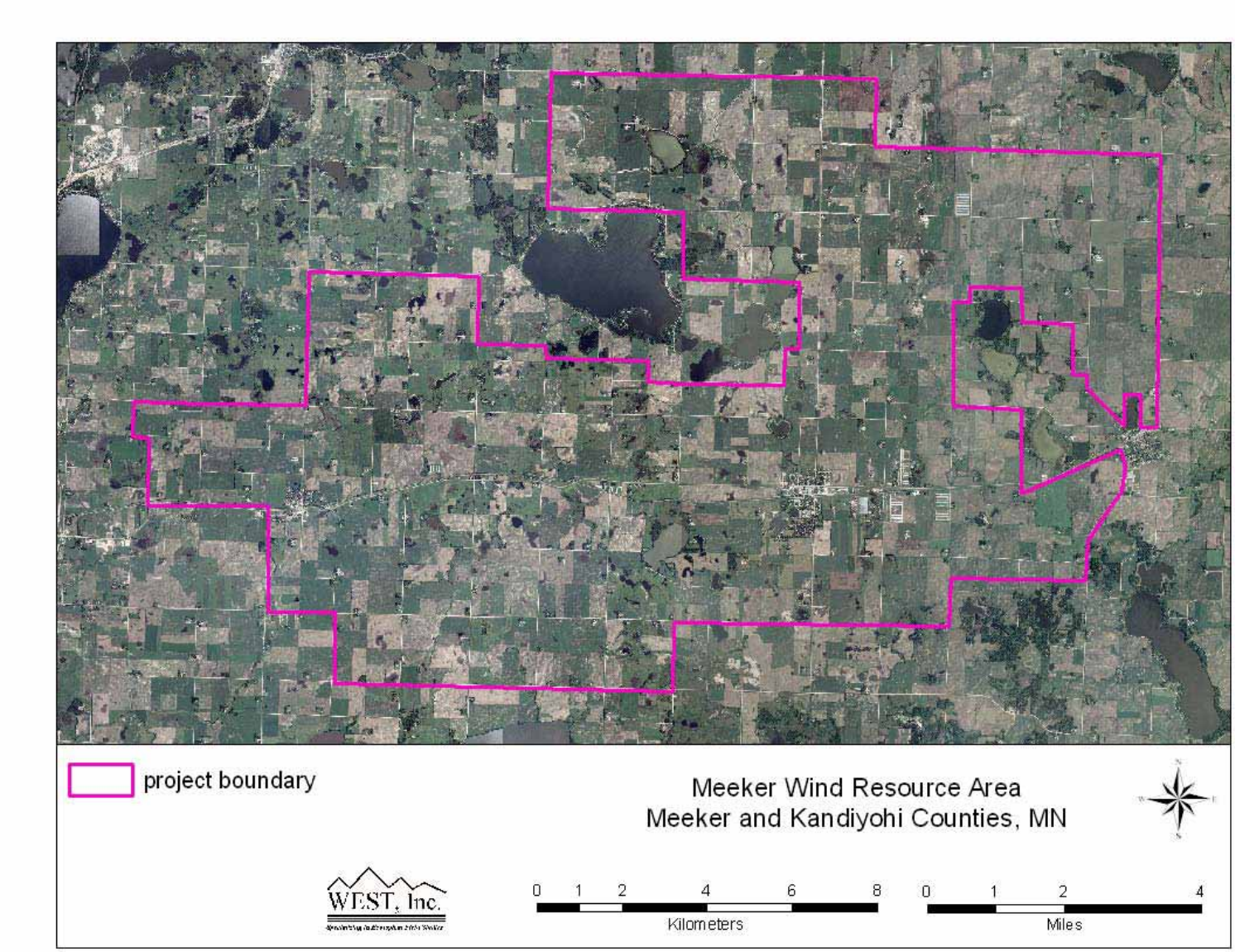


Figure 2. Aerial photo of the Meeker Wind Resource Area (NAIP 2006).

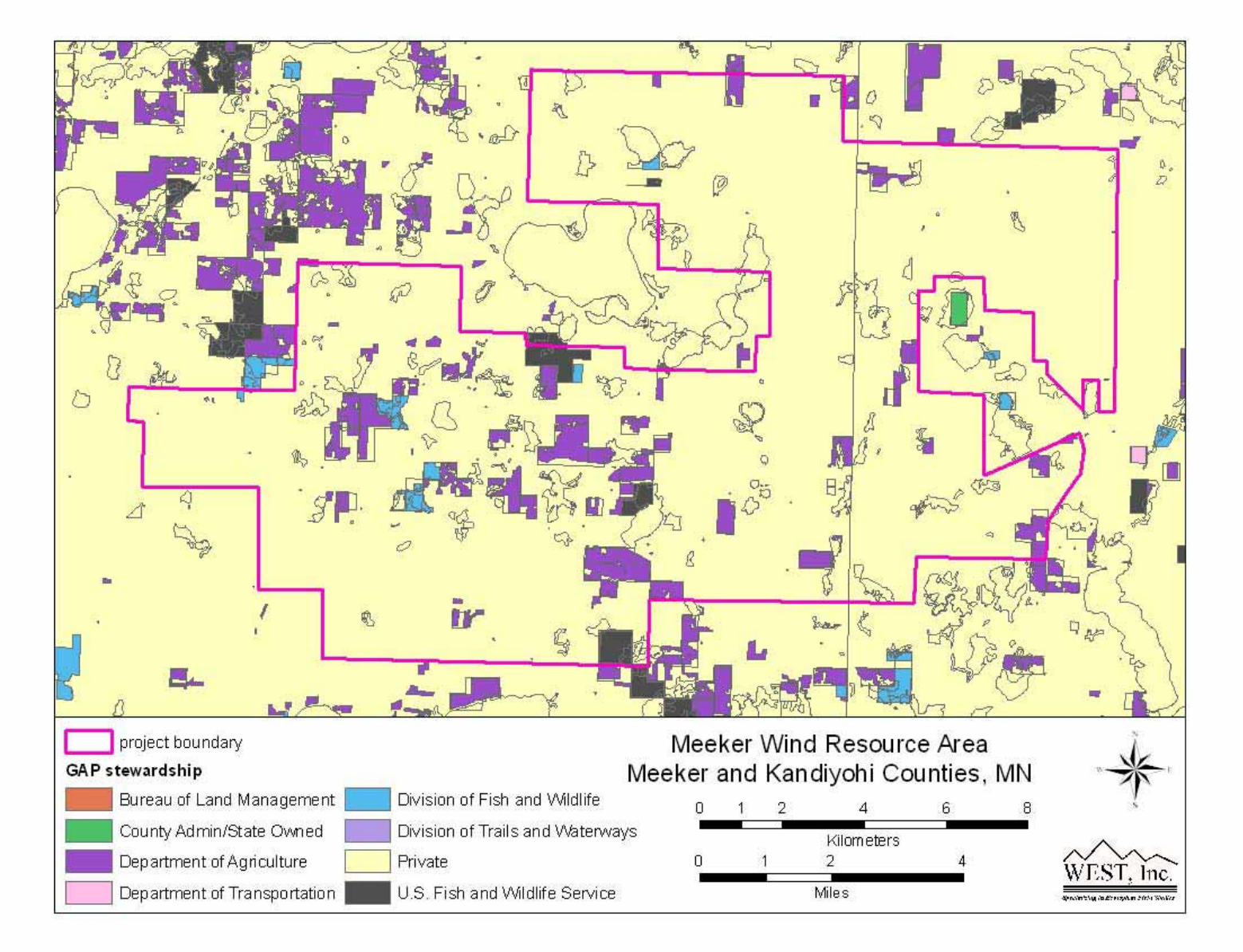


Figure 3. Stewardship (ownership) map of the Meeker Wind Resource Area (MN GAP Analysis).

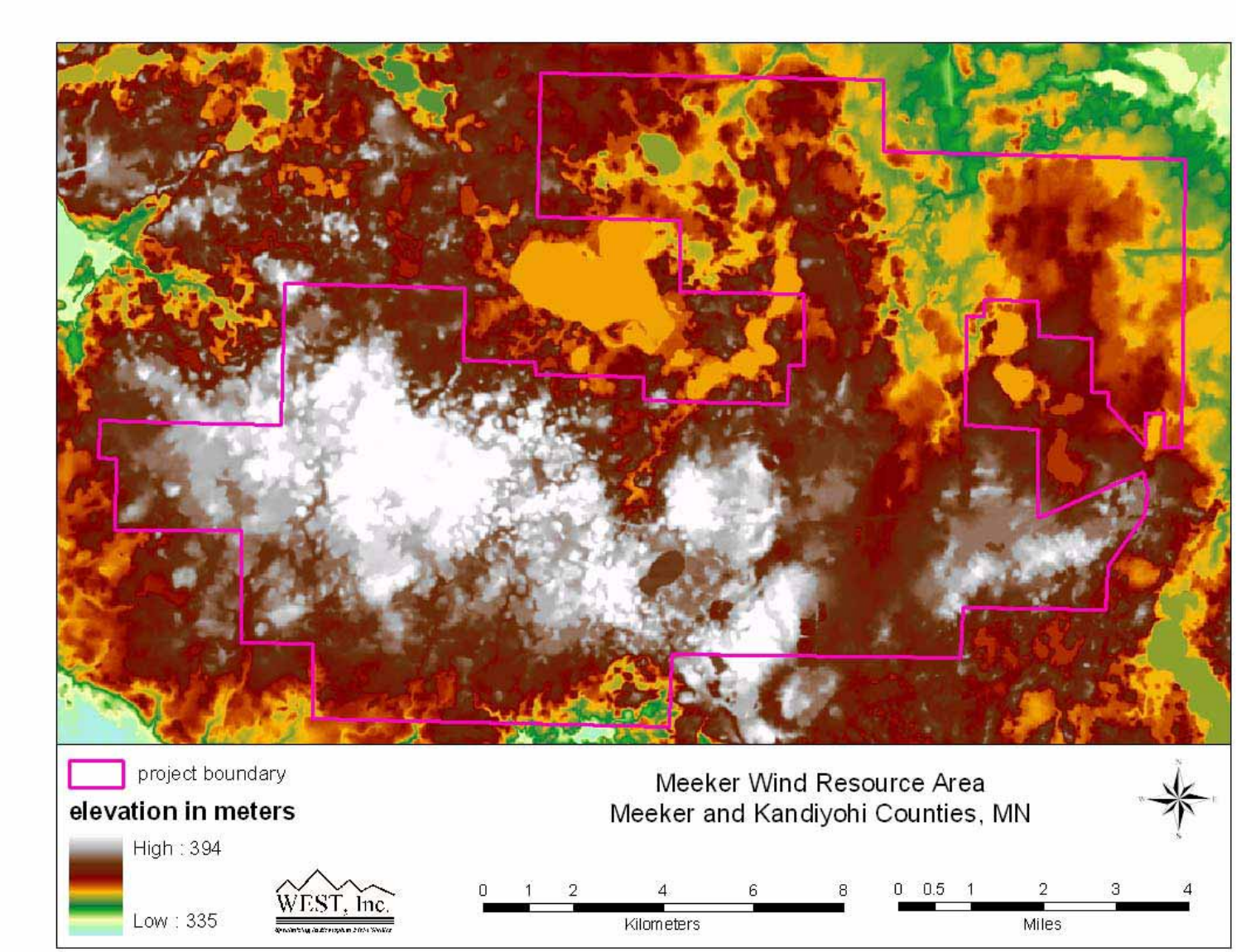


Figure 4. Elevation of the Meeker Wind Resource Area.

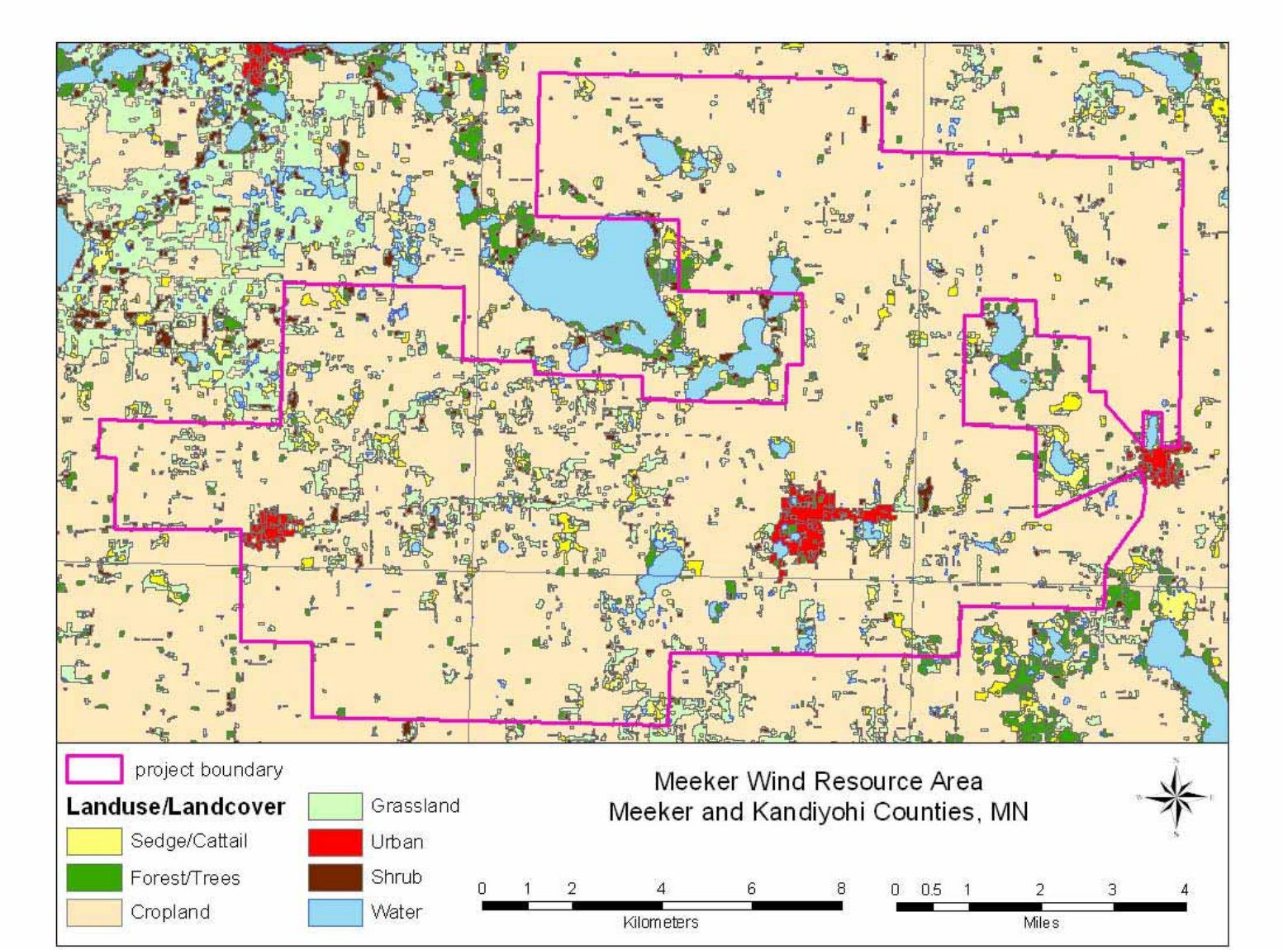


Figure 5. Landuse of the Meeker Wind Resource Area (MN GAP Analysis).

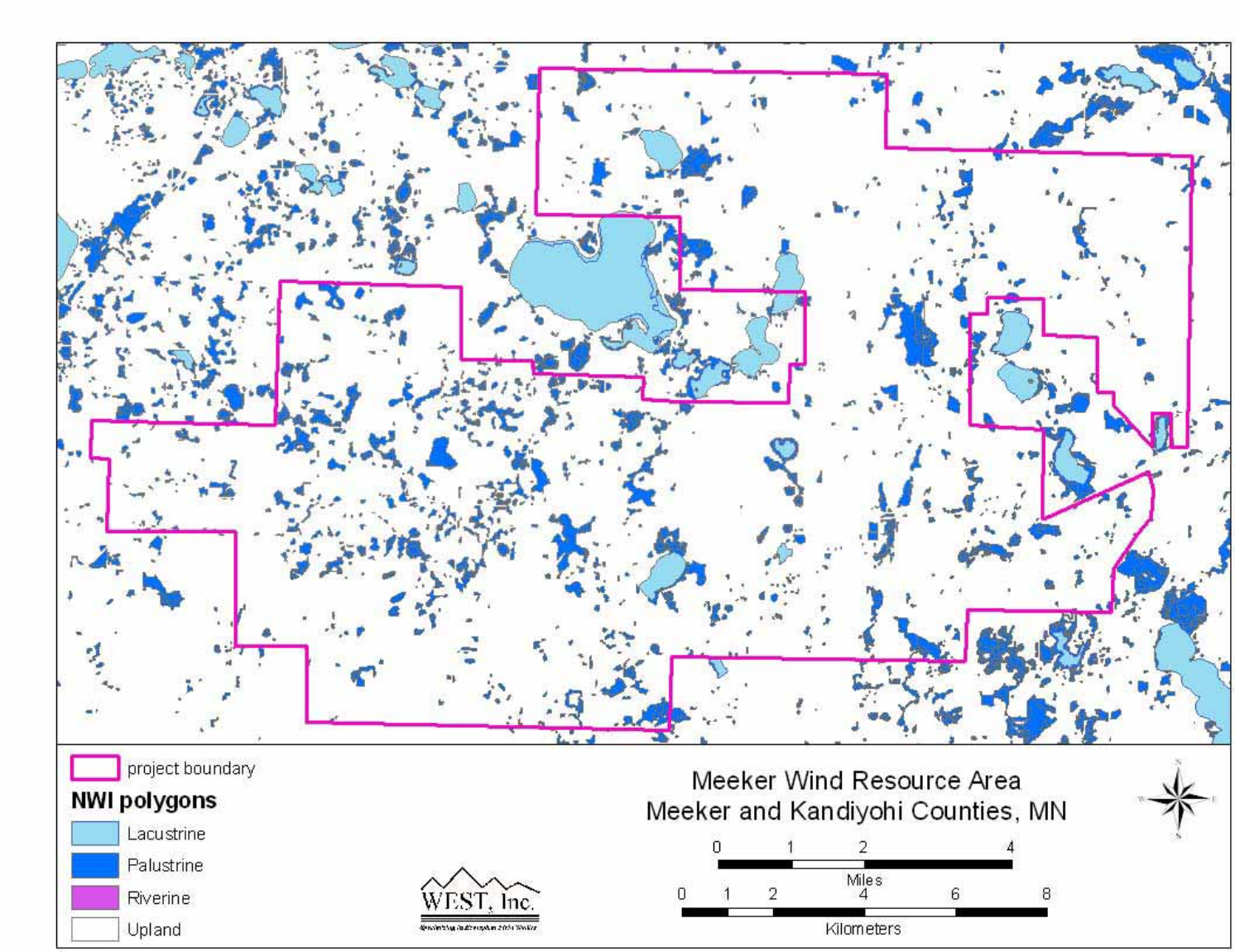


Figure 6. NWI wetland polygons in the Meeker Wind Resource Area.

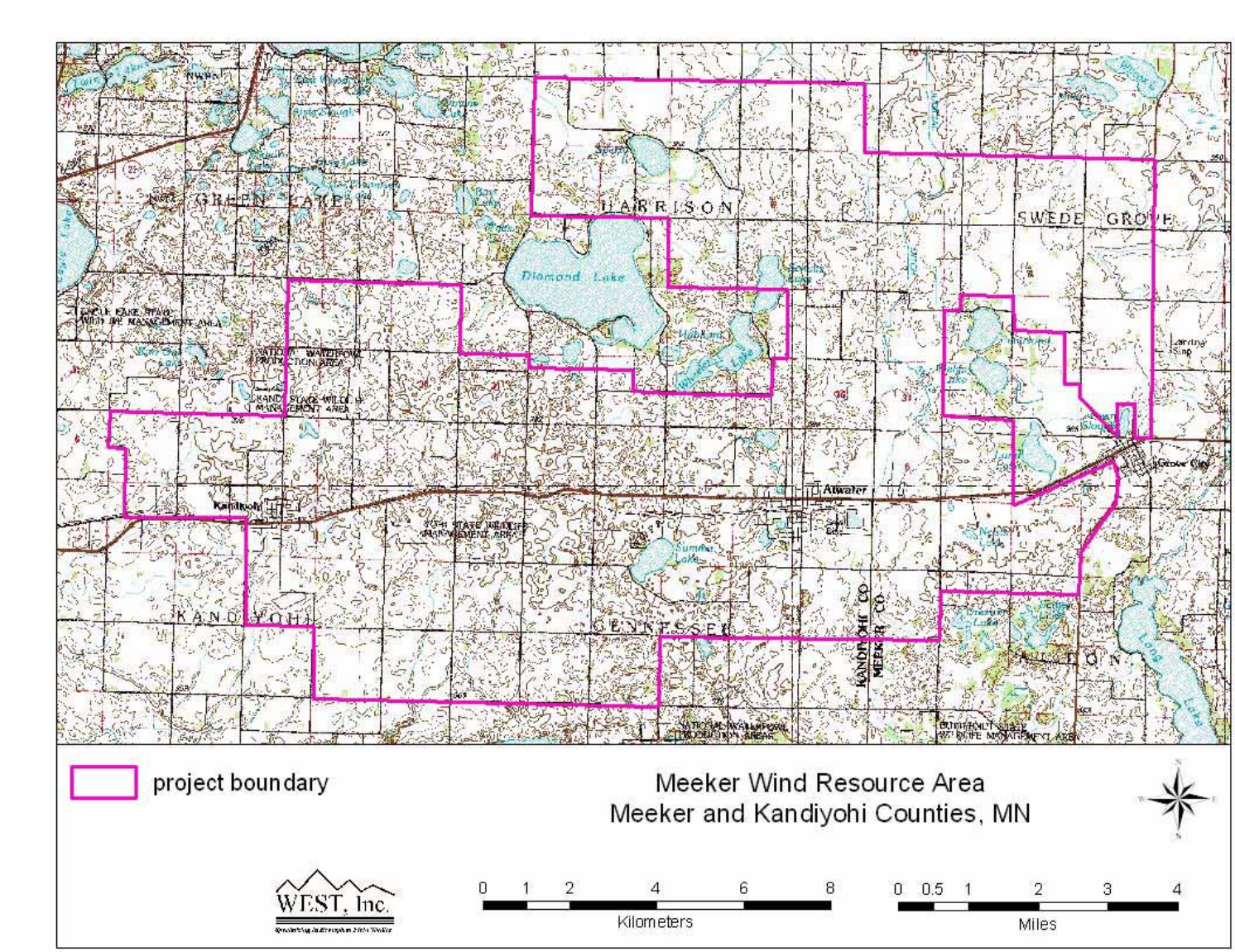


Figure 7. Topographic map of the Meeker Wind Resource Area.

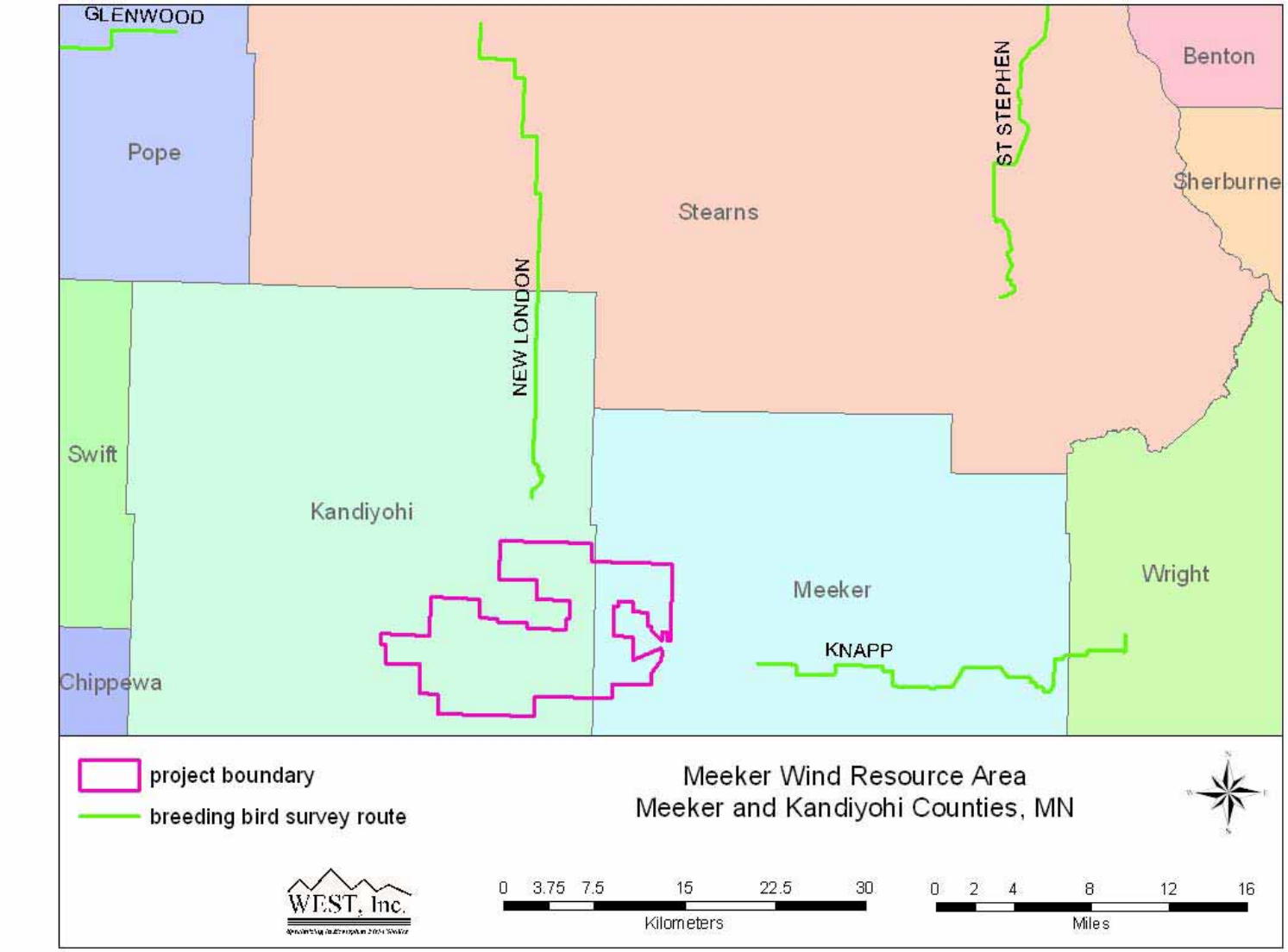


Figure 8. Map of nearest breeding bird survey routes to the Meeker Wind Resource Area.

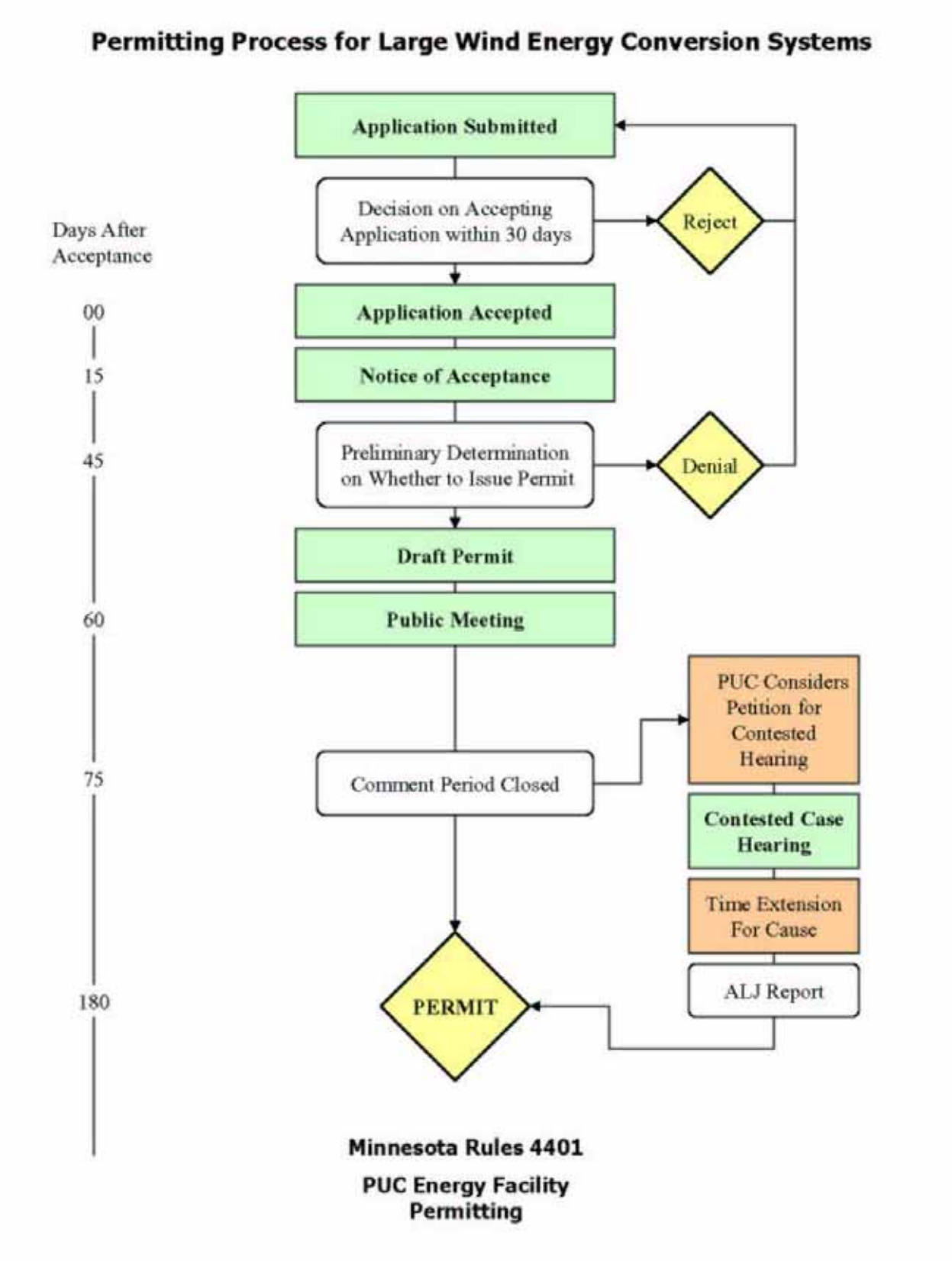


Figure 9. Schematic of state permitting process from Minnesota PUC web site.

Appendix A: Photographs from the Meeker Wind Resource Area

Photo 1. Photograph of the north-central portion of MWRA.

Photo 2. Wetland/tree area near central part of MWRA

Photo 3. Eastern portion of MWRA.

Photo 4. Central portion of MWRA, lakes/tree in portion out of project area.

Photo 5. Agricultural lands in central portion of MWRA.

Photo 6. Western portion of MWRA.

Photo 7. Southwest portion of MWRA.

Photo 8. Agricultural lands and groves in southeastern portion of MWRA.

Appendix B: Correspondence with USFWS and MNHP

May 2, 2008

Laurie Fairchild
USFWS ES Office
4101 E. 80th St.
Bloomington, MN 55425

RE: Proposed Wind Energy Facility in Kandiyohi and Meeker Counties, MN

Dear Ms. Fairchild,

One of our clients is evaluating the feasibility of developing a wind energy facility in Kandiyohi and Meeker Counties, Minnesota. We have been asked to do an environmental screening analysis for the project. As the wind energy facility is in the very early stage of development, no specific attributes (i.e. project size, turbine types, etc.) or construction dates are known.

We request that you review the proposed project area and provide us with any information on federal species and habitats of concern or sensitive environmental areas that could potentially be affected by the project. If your review indicates that species of concern may be affected by the project, please provide detailed location and life history information for each species and your recommendations for minimizing impacts. This information will be treated as confidential and will be used for project purposes only.

Thank you for your assistance. If you have any questions or require additional information, please contact me 701-250-1756.

Sincerely,

Clayton Derby
Project Manager
cderby@west-inc.com

Attachment: Project area map

NO STAPLES
PLEASE

For Agency Use Only:
Received _____ Due _____ RUSH
Related ERDB# _____
Search Radius _____mi. ER/All Map'd _____ EOs _____
NoR/ NoC/ NoE/ Std/ Sub Let ____ Inv _____ Log out ____

MINNESOTA NATURAL HERITAGE INFORMATION SYSTEM (NHIS) DATA REQUEST FORM

DATE OF REQUEST 5-2-08

WHO IS REQUESTING THE INFORMATION?

Name and Title Ann L. Dahl
Agency/Company WEST, Inc
Mailing Address 4007 State St, Ste 109, Bismarck, ND 58503
(Street) (City) (State) (Zip Code)
Phone 701-250-175[illegible]61 FAX 701-250-17[illegible] e-mail adahl@west-inc.com

WHAT INFORMATION DO YOU NEED? Preferred Reply Method: Email ☐ US Mail ☒

☒ Printouts of known occurrences of federally and state listed plants and animals; native plant communities; and aggregation sites such as bat hibernacula, colonial waterbird nesting sites, and prairie chicken booming grounds.
- ☐ With Environmental Review
- ☒ Printouts Only; No Review Needed

☐ Printouts of information listed above, plus geological features and state rare species with no legal status.
- ☐ With Environmental Review
- ☐ Printouts Only; No Review Needed

☐ Other (describe) _____

INFORMATION WE NEED FROM YOU:

1) **Enclose a map** of the project boundary (topographic maps or aerial photos are preferred).
2) If possible, please **provide a GIS shapefile** (NAD 83, UTM Zone 15N) of the project area.
3) List the following locational information (attach additional sheets if necessary):

For Agency Use Only:	County	Township #	Range #	Section(s) (please list **all** sections)
	Kandiyohi	119	33	1-24, 27-30
			34	1-6, 8-15, 22-26
		120	33	7-17, 20-27, 30-36
			34	25-27, 33-36
	Meeker	119	32	3-10, 16-20
		120	32	15-23, 26-35

4) Please provide the following information (attach additional sheets if necessary):

Project Name Meeker Wind Resource Area
Project Proposer National Wind Inc
Detailed Project Description (see instructions, please)
No detailed description is available. National Wind proposes to build wind turbines, access rds, etc.

Current/Past Land-Use of Project Site Currently area is tilled agriculture

5) You will be provided with a response letter, an index database printout, and a detailed database printout. **Describe how you plan to use this information**, including in what form and detail, if any, you wish to publish this information. (Please note that we do not generally give permission to publish the detailed database printout.) The info will be used in a report to National Wind regarding animals, plants, etc that could be found in or near the project area. At most, the report will provide species id and part of project area where it will appear.

TURN-AROUND TIME

Requests generally take **3 weeks** from date of receipt to process, and are processed in the order received. Rush requests are processed in 2 weeks or less, and include an extra fee.

FEES

For-profit organizations, including consultants working for governmental agencies, are charged a fee for this service. In addition, **a fee may be charged for large requests from any source. A surcharge of $50 is applied for ALL rush orders;** if this is a rush order, please check the blank below. All fees are subject to change. Please do not include payment with your request; an invoice will be sent to you.

☒ **Rush - ($50 fee for ALL rush orders)**

"The information supplied above is complete and accurate. I understand that material supplied to me from the Minnesota Natural Heritage Information System is copyrighted and that I am not permitted to reproduce or publish any of this copyrighted material without prior written permission from the Minnesota DNR. Further, if permission to publish is given, I understand that I must credit the Minnesota Natural Heritage and Nongame Research Program, Minnesota Department of Natural Resources as the source of the material."

Signature **(required)** Ann L. Dahl

Mail or email completed forms to:

Lisa Joyal *(for projects associated with environmental reviews; e.g., EAWs)*
Endangered Species Environmental Review Coordinator
lisa.joyal@dnr.state.mn.us
or
Sharron Nelson *(for general requests)*
Assistant Database Manager
sharron.nelson@dnr.state.mn.us
at
Natural Heritage and Nongame Research Program
Minnesota Department of Natural Resources
500 Lafayette Road, Box 25
St. Paul, Minnesota 55155

For further information call:

(651) 259-5109

(651) 259-5123

Or FAX completed forms to: (651) 296-1811

Additional information about the Natural Heritage & Nongame Research Program is available at http://www.dnr.state.mn.us/eco/nhnrp/

For Agency Use Only:
EO's requiring comment _____

Sources contacted	Topic	Response

Response Summary _____

_____ Responder _____

Revised May 2007

Appendix C: Level I Cultural Resource Inventory

Level I Cultural Resource Inventory for the Meeker Wind-Farm Project in Kandiyohi and Meeker Counties, Minnesota.

By
Christina Grimsrud Burns, M.S., RPA

Prepared for:
WEST, Inc

Prepared by:

Beaver Creek Archaeology, Inc
111 S Broadway, P.O. Box 489
Linton, ND 58552

May, 2008

1. Introduction

WEST, Inc contracted Beaver Creek Archaeology, Inc (BCA) to perform a Level I Cultural Resource Inventory (Literature Review/File search) of a proposed wind farm project in Kandiyohi and Meeker Counties, Minnesota. The area of potential effect (APE) covers approximately 49,950 acres across 88 sections located in the Harrison, Gennessee, Green Lake, and Kandiyohi Townships in Kandiyohi County, and Acton and Swede Grove Townships in Meeker County.

Township Name	Township	Range	County
HARRISON	102	9	Kandiyohi
GENNESSEE	101	13	Kandiyohi
GREEN LAKE	102	13	Kandiyohi
KANDIYOHI	101	11	Kandiyohi
ACTON	101	9	Meeker
SWEDE GROVE	104	14	Meeker

The file search was conducted at the Minnesota State Historical Society April 2008.

This report contains information about currently recorded Historic and Pre-historic sites and the potential for such sites within the APE. It also contains an environmental description of the area as well as recommendations for future Cultural Resource Inventories.

2. Project Goal

The goal of the Level I Cultural Resource Inventory is to provide WEST, Inc. with knowledge of the Cultural Resources and the potential of Cultural Resources within the project area. This knowledge can aid in the planning stages of the wind farm project by potentially avoiding such resources and thereby complying with Federal and State regulations.

3. Environment

The project area is situated on the "Prairie Lake North" and the "Central Lakes Deciduous South" Archaeological Regions. There are several small and large lakes in the area, such as Summit Lake, Schultz Lake, Diamond Lake, and Pay Lake.

The project is situated within in the Central Iowa and Minnesota Till Prairies.

The NRCS describes the area in this way: It is situated in the Western Lake Section of the Central Lowland Province of the Interior Plains which has a nearly level to gently rolling Glaciated Till Plain with moraines and glacial lake plains. It is covered in glacial till outwash and glacial lake deposits which supports a Prairie vegetation such as Little Bluestem, Indiangrass, Switchgrass, Needlegrass, bur oak, juniper, and sumac. Wildlife in the area consists of whitetail deer, fox, rabbit, squirrels, beaver, otter and waterfowl. Streams, rivers and lakes contain numerous fish species.

This biotic diversity along with the availability of water makes this setting favorable for human settlement, both during prehistoric and historic time-periods.

4. Result

A literature review was performed at the Minnesota State Historical Society where 1 Archaeological Site and 39 Historic/Architectural Sites were discovered (see appendix B).

According to the file search result at the Minnesota State Historical Society, the project area contains only one Archaeological site and few Historic/Architectural sites, most of which are within city limits. However, the project location, which contains a number of lakes, suggests that the area has a high potential of containing archaeological sites.

5. Recommendation

The proposed project area is located in a region that has high potential for archaeological sites. Not many cultural resource inventories have been performed within the project area, and there is only one archaeological site recorded. However, it is likely that other cultural resources are located here as well.

It is therefore recommended that a Level III Cultural Resource Inventory be performed within the proposed project area.

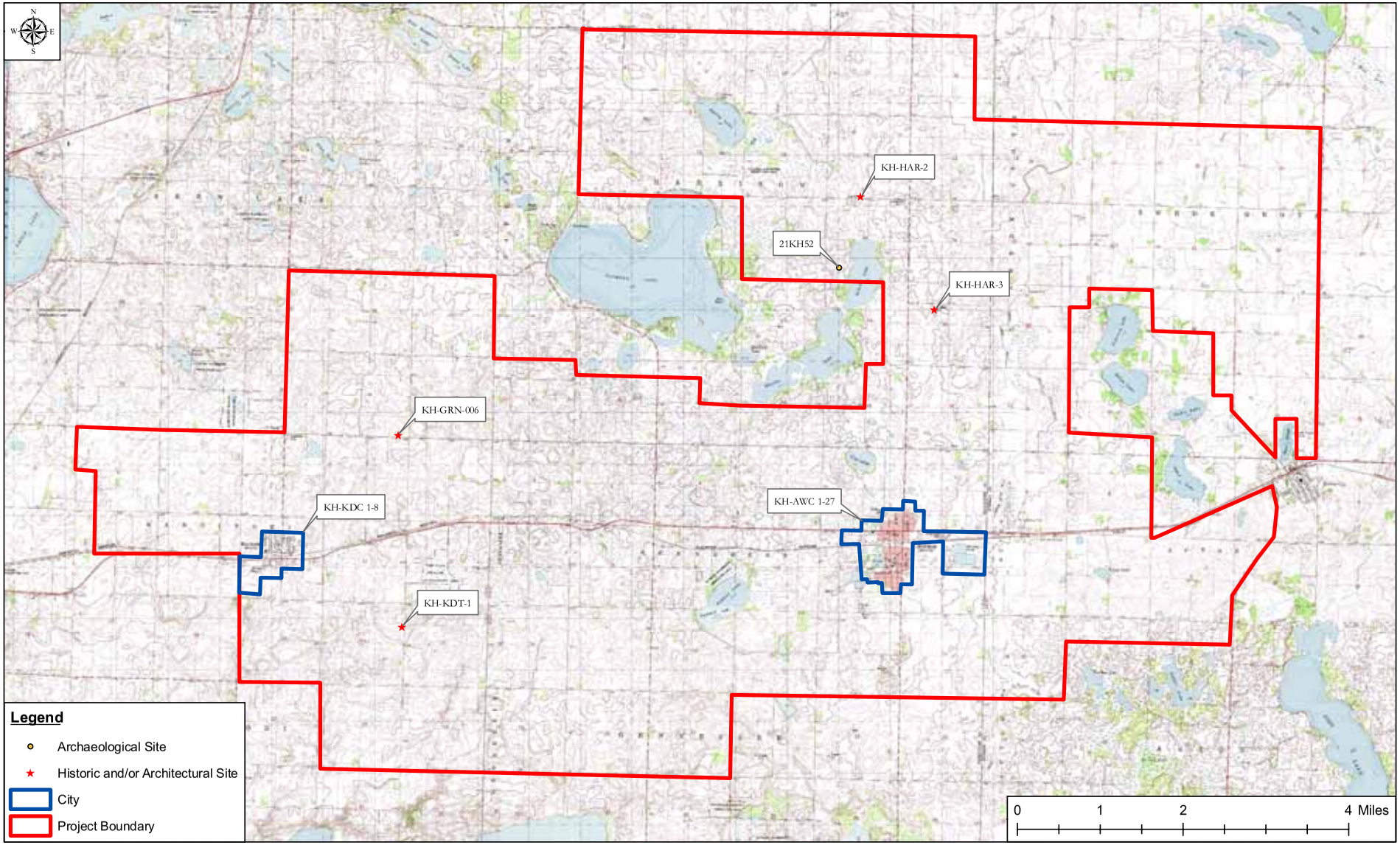
If the project is to directly impact any of the existing sites, further work would have to be performed:

- Existing sites that are eligible for the National Register for Historic Places need to be avoided.
- Sites that need further evaluation need to be either avoided, reevaluated, or have a systematic evaluative testing performed.

Appendix A:

Map Section

Class I Project Overview



Appendix B:
List of Sites

Explanations to acronyms:

CEF – Considered Eligible For National Register for Historic Places
NR / NRHP – On National Register for Historic Place

Archaeological Site Locations

Site Number	Site Name	Twp.	Range	Sec.	Quarter Sections	Acres	Phase	Site Description
County:	**Kandiyohi**							
21KH0052		120	33	23	NE-SW-SW	1	1	SA

History/Architecture Inventory

PROPERTY NAME	ADDRESS	Twp	Range	Sec	Quarters	USGS	Report	NRHP	CEF	DOE	Inventory Number
COUNTY: Kandiyohi											
CITY/TOWNSHIP: Atwater											
Atwater Creamery	115 2nd St. N.	119	33	11	NE-NE-NE	Atwater	KH-87-1H				KH-AWC-001
Hedner House	211 2nd St. S.	119	33	11	NE-SE-NE	Atwater	KH-87-1H				KH-AWC-002
First Methodist Church	NW corner 2nd St. S. & Wyoming Ave.	119	33	11	NE-SE-NE	Atwater	KH-87-1H				KH-AWC-003
Security State Bank (Farmers State Bank)	110 3rd St. N.	119	33	11	NW-NE-NE	Atwater	KH-87-1H				KH-AWC-004
commercial building	ca. 115 3rd St. N.	119	33	11	NW-NE-NE	Atwater	KH-87-1H				KH-AWC-005
Stene Block	ca. 120 3rd St. N.	119	33	11	NW-NE-NE	Atwater	KH-87-1H				KH-AWC-006
First Presbyterian Church	SW corner 3rd St. N. & Pleasant Ave.	119	33	11	NW-NE-NE	Atwater	KH-87-1H				KH-AWC-007
Martin Olson House	201 3rd St. S.	119	33	11	NW-SE-NE	Atwater	KH-87-1H				KH-AWC-008
house	209 3rd St. S.	119	33	11	NW-SE-NE	Atwater	KH-87-1H				KH-AWC-009
First Lutheran Church	SW corner 3rd St. S. & Wyoming Ave.	119	33	11	NW-SE-NE	Atwater	KH-87-1H				KH-AWC-010
Great Northern Depot	123 4th St. N.	119	33	11	NW-NE-NE	Atwater	KH-87-1H				KH-AWC-011
F. Danielson & Sons Flour & Feed	110 Atlantic Ave.	119	33	11	NE-NE-NE	Atwater	KH-87-1H				KH-AWC-012
commercial building	2xx Atlantic Ave.	119	33	11	NW-NE-NE	Atwater	KH-87-1H				KH-AWC-013
Walen & Anderson Building	300 Atlantic Ave.	119	33	11	NW-NE-NE	Atwater	KH-87-1H				KH-AWC-014
U.S. Post Office	3xx Atlantic Ave.	119	33	11	NW-NE-NE	Atwater	KH-87-1H				KH-AWC-015
Hotel Atwater	322 Atlantic Ave.	119	33	11	NW-NE-NE	Atwater	KH-87-1H	Y			KH-AWC-016
house	104 Main St. N.	119	33	11	NE-NE-NE	Atwater	KH-87-1H				KH-AWC-017
house	115 Main St. N.	119	33	12	NW-NW-NW	Atwater	KH-87-1H				KH-AWC-018
house	301 Main St. N.	119	33	1	SW-SW-SW	Atwater	KH-87-1H				KH-AWC-019
house	310 Main St. N.	119	33	2	SE-SE-SE	Atwater	KH-87-1H				KH-AWC-020
house	411 Main St. N.	119	33	1	NW-SW-SW	Atwater	KH-87-1H				KH-AWC-021
house	500 Main St. N.	119	33	2	NE-SE-SE	Atwater	KH-87-1H				KH-AWC-022

PROPERTY NAME	ADDRESS	Twp	Range	Sec	Quarters	USGS	Report	NRHP	CEF	DOE	Inventory Number
COUNTY: Kandiyohi											
CITY/TOWNSHIP: Atwater											
Bethlehem Lutheran Church	NW corner Main St. S. & Idaho Ave.	119	33	11	SE-SE-NE	Atwater	KH-87-1H				KH-AWC-023
house	209 Pacific Ave.	119	33	11	SW-NE-NE	Atwater	KH-87-1H				KH-AWC-024
Hintz House	100 Pleasant Ave.	119	33	2	SE-SE-SE	Atwater	KH-87-1H				KH-AWC-025
house	202 Pleasant Ave.	119	33	2	SW-SE-SE	Atwater	KH-87-1H				KH-AWC-026
J.S. Gibson House	210 Pleasant Ave.	119	33	2	SW-SE-SE	Atwater	KH-87-1H				KH-AWC-027
CITY/TOWNSHIP: Green Lake Twp.											
Cook Farmstead Barn	off Co. Rd. 91	120	34	35	S-SE-SE	Spicer	KH-87-1H				KH-GRN-006
CITY/TOWNSHIP: Harrison Twp.											
Harrison Town Hall	off Co. Rd. 28	120	33	14	SE-SE-SW	Atwater	KH-87-1H				KH-HAR-002
St. John's Lutheran Church & School	off Co. Rd. 139	120	33	25	NW-SE-NW	Atwater	KH-87-1H				KH-HAR-003
CITY/TOWNSHIP: Kandiyohi											
St. Patrick's Catholic Church	SE corner 3rd St. & McLaughlin Ave.	119	34	10	NW-SW-NE	Spicer	KH-87-1H				KH-KDC-001
Kandiyohi Cooperative Creamery	4xx 4th St.	119	34	10	NE-SE-NW	Spicer	KH-87-1H				KH-KDC-002
house	452 4th St.	119	34	10	NW-SW-NE	Spicer	KH-87-1H				KH-KDC-003
house	529 5th St.	119	34	10	NE-SE-NW	Spicer	KH-87-1H				KH-KDC-004
house	552 5th St.	119	34	10	NE-SE-NW	Spicer	KH-87-1H				KH-KDC-005
Home State Bank	344 Atlantic Ave W	119	34	10	SW-SW-NE	Spicer	KH-87-1H				KH-KDC-006
Ebenezer Lutheran Church	NW corner Atlantic Ave. & 6th St.	119	34	10	SW-SE-NW	Spicer	KH-87-1H				KH-KDC-007
Whittier School	NE corner Atlantic Ave. & 7th St.	119	34	10	SW-SE-NW	Spicer	KH-87-1H				KH-KDC-008

PROPERTY NAME	ADDRESS	Twp	Range	Sec	Quarters	USGS	Report	NRHP	CEF	DOE	Inventory Number
COUNTY: Kandiyohi											
CITY/TOWNSHIP: Kandiyohi Twp.											
Christ & Emma Pearson Farmstead	off Co. Rd. 133	119	34	14	NE-SE-NE	Little Kandiyohi Lk	KH-87-1H				KH-KDT-001